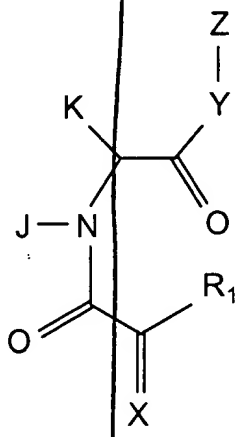
We claim:

1. A method of treating a neurological activity in an animal, comprising:

administering to said animal an effective amount of a compound having an affinity for FKBP-type immunophilins according to formula II

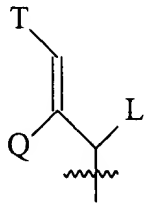


Formula II

or a pharmaceutically acceptable salt thereof,

- wherein Y is O, NH, or N-(C1-C4 alkyl);

- wherein Z is hydrogen, CHL-Ar, (C1-C6)-straight or branched alkyl, (C2-C6)-straight or branched alkenyl, (C5-C7)-cycloalkyl, (C5-C7)-cycloalkenyl or Ar substituted (C1-C6)-alkyl or (C2-C6)-alkenyl, or



- wherein L and Q are independently hydrogen, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl;

- wherein T is Ar or substituted cyclohexyl with substituents at positions 3 and 4 which are independently selected from the group consisting of hydrogen,

hydroxyl, O-(C1-C4)-alkyl or O-(C2-C4)-alkenyl and carbonyl;

- wherein Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, CF_3, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, O-benzyl, O-phenyl, amino and phenyl;

- wherein R_1 is U; X is either oxygen or CH-U, provided that if R_1 is hydrogen, then X is CH-U, or if X is oxygen then R_1 is U;

- wherein U is hydrogen, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar;

- wherein J is hydrogen or C1 or C2 alkyl or benzyl; K is (C1-C4)-straight or branched alkyl, benzyl or cyclohexylethyl; or wherein J and K may be taken together to form a 5-7 membered heterocyclic ring which may contain an oxygen (O), sulfur (S), SO or SO_2 substituted therein; and

- wherein said neurological activity does not include amyotrophic lateral sclerosis.

2. The method of claim 1, wherein the neurological activity is selected from the group consisting of stimulation of damaged neurons, promotion of neuronal

regeneration, prevention of neurodegeneration, and treatment of a neurological disorder.

3. The method of claim 2, wherein the neurological disorder is selected from the group consisting of peripheral neuropathies caused by physical injury or disease state, physical damage to the brain, physical damage to the spinal cord, stroke associated with brain damage, and neurological disorders relating to neurodegeneration.

4. The method of claim 3, wherein the neurological disorder is Alzheimer's Disease or Parkinson's Disease.

5. The method of claim 1, wherein J and K are taken together to form a 5 membered heterocyclic ring.

6. The method of claim 5,

- wherein X is oxygen and R_1 is not hydrogen;
- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

7. The method of claim 6, wherein

- if R_1 is C1-C6 straight or branched alkyl, C2-C6 straight or branched alkenyl, C5-C7 cycloalkyl substituted with C1-C4 straight or branched alkyl or C2-C4 straight or branched alkenyl, or Ar, and Ar is 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl;

- then Z is not:

1) a C1-C6 alkyl or C2-C6 alkenyl substituted with substituted or unsubstituted 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl; or

2) a C1-C6 alkyl or C2-C6 alkenyl substituted with C5-C7 cycloalkyl.

8. The method of claim 1, wherein J and K are taken together to form a 6 membered heterocyclic ring.

9. The method of claim 8,

- wherein X is oxygen and R_1 is not hydrogen;

- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

10. The method of claim 9, wherein

-if Y is oxygen and R_1 is 1,1-dimethyl-1-propyl, then Z is not 3-cycloheylpropyl, 3-phenylpropyl, or 3-(3',4,5-trimethoxyphenyl)propyl; and

-if Y is oxygen and R_1 is 3',4,5-trimethoxyphenyl, then Z is not 4-(4'-methoxyphenyl)butyl; and

-if Y is oxygen and Z is ethyl, then R_1 is not methyl, ethyl, isopropyl, 2-methylpropyl, t-butyl, 1,1-dimethyl-1-propyl, phenyl, or benzyl.

11. The method according to claim 1, further comprising co-administering to said animal an effective amount of a neurotrophic factor selected from the group consisting of nerve growth factor, brain derived growth factor, glial derived growth factor, cilial neurotrophic factor, and neurotropin-3.

12. The method of claim 11, wherein the neurological activity is selected from the group consisting of stimulation of damaged neurons, promotion of neuronal regeneration, prevention of neurodegeneration and treatment of a neurological disorder.

13. The method of claim 12, wherein the neurological disorder is selected from the group consisting of peripheral neuropathies caused by physical injury or disease state, physical damage to the brain, physical damage to the spinal cord, and neurological disorders relating to neurodegeneration.

14. The method of claim 12, wherein the neurological disorder is Alzheimer's Disease or Parkinson's Disease.

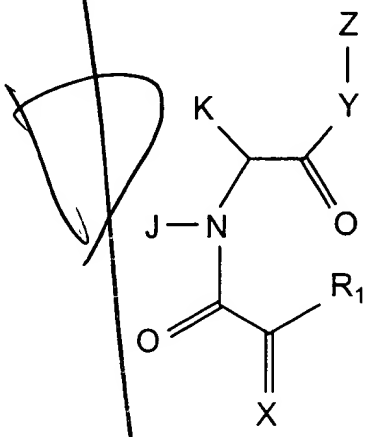
15. The method of claim 11, wherein J and K are taken together to form a 5

membered heterocyclic ring.

16. The method of claim 11, wherein J and K are taken together to form a 6 membered heterocyclic ring.

17. A method for preventing neurodegeneration in an animal, comprising:

administering to said animal an effective amount of a compound having an affinity for FKBP-type immunophilins according to formula II

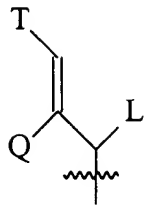


Formula II

or a pharmaceutically acceptable salt thereof,

- wherein Y is O, NH, or N-(C1-C4 alkyl);

- wherein Z is hydrogen, CHL-Ar, (C1-C6)-straight or branched alkyl, (C2-C6)-straight or branched alkenyl, (C5-C7)-cycloalkyl, (C5-C7)-cycloalkenyl or Ar substituted (C1-C6)-alkyl or (C2-C6)-alkenyl, or



- wherein L and Q are independently hydrogen, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl;

- wherein T is Ar or substituted cyclohexyl with substituents at positions 3 and 4 which are independently selected from the group consisting of hydrogen, hydroxyl, O-(C1-C4)-alkyl or O-(C2-C4)-alkenyl and carbonyl;

- wherein Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, CF_3, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, O-benzyl, O-phenyl, amino and phenyl;

- wherein R_1 is U; X is either oxygen or CH-U, provided that if R_1 is hydrogen, then X is CH-U, or if X is oxygen then R_1 is U;

- wherein U is hydrogen, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar;

- wherein J is hydrogen or C1 or C2 alkyl or benzyl; K is (C1-C4)-straight

or branched alkyl, benzyl or cyclohexylethyl; or wherein J and K may be taken together to form a 5-7 membered heterocyclic ring which may contain an oxygen (O), sulfur (S), SO or SO_2 substituted therein; and

- wherein the neuronal degeneration is not caused by amyotrophic lateral sclerosis.

18. The method of claim 17, wherein J and K are taken together to form a 5 membered heterocyclic ring.

19. The method of claim 18,

- wherein X is oxygen and R_1 is not hydrogen;

- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

20. The method of claim 19, wherein

- if R_1 is C1-C6 straight or branched alkyl, C2-C6 straight or branched alkenyl, C5-C7 cycloalkyl substituted with C1-C4 straight or branched alkyl or C2-C4 straight or branched alkenyl, or Ar, and Ar is 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl;

- then Z is not:

1) a C1-C6 alkyl or C2-C6 alkenyl substituted with substituted or unsubstituted 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl; or

2) a C1-C6 alkyl or C2-C6 alkenyl substituted with C5-C7 cycloalkyl.

21. The method of claim 17, wherein J and K are taken together to form a 6 membered heterocyclic ring.

22. The method of claim 21,

- wherein X is oxygen and R_1 is not hydrogen;

- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

23. The method of claim 22, wherein

-if Y is oxygen and R_1 is 1,1-dimethyl-1-propyl, then Z is not 3-cycloheylpropyl, 3-phenylpropyl, or 3-(3',4,5-trimethoxyphenyl)propyl; and

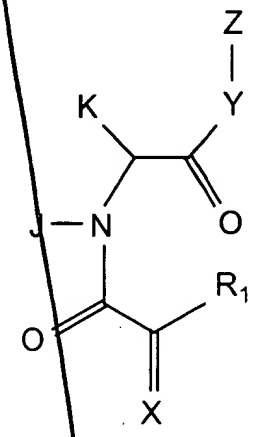
-if Y is oxygen and R_1 is 3',4,5-trimethoxyphenyl, then Z is not 4-(4'-methoxyphenyl)butyl; and

-if Y is oxygen and Z is ethyl, then R_1 is not methyl, ethyl, isopropyl, 2-methylpropyl, t-butyl, 1,1-dimthyl-1-propyl, phenyl, or benzyl.

24. The method of claim 17, further comprising co-administering an effective amount of a neurotrophic factor to prevent neurodegeneration selected from the group consisting of nerve growth factor, brain derived growth factor, glial derived growth factor, ciliary neurotrophic factor, and neurotropin-3.

25. A method for promoting neuronal regeneration and/or growth in an animal, comprising:

administering to said animal an effective amount of compound having an affinity for FKBP-type immunophilins according to formula II

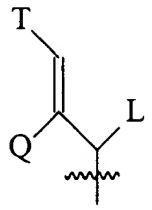


Formula II

or a pharmaceutically acceptable salt thereof,

- wherein Y is O, NH, or N-(C1-C4 alkyl);

- wherein Z is hydrogen, CHL-Ar, (C1-C6)-straight or branched alkyl, (C2-C6)-straight or branched alkenyl, (C5-C7)-cycloalkyl, (C5-C7)-cycloalkenyl or Ar substituted (C1-C6)-alkyl or (C2-C6)-alkenyl, or



- wherein L and Q are independently hydrogen, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl;

- wherein T is Ar or substituted cyclohexyl with substituents at positions 3 and 4 which are independently selected from the group consisting of hydrogen, hydroxyl, O-(C1-C4)-alkyl or O-(C2-C4)-alkenyl and carbonyl;

- wherein Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, CF_3, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, O-benzyl, O-phenyl, amino and phenyl;

- wherein R_1 is U; X is either oxygen or CH-U, provided that if R_1 is hydrogen, then X is CH-U, or if X is oxygen then R_1 is U;

- wherein U is hydrogen, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar; and

- wherein J is hydrogen or C1 or C2 alkyl or benzyl; K is (C1-C4)-straight or branched alkyl, benzyl or cyclohexylethyl; or wherein J and K may be taken together to form a 5-7 membered heterocyclic ring which may contain an oxygen (O), sulfur (S), SO or SO_2 substituted therein.

26. The method of claim 25, further comprising co-administering an effective amount of a neurotrophic factor to promote neuronal regeneration selected from the group consisting of nerve growth factor, brain derived growth factor, glial derived growth factor, and neurotropin-3.

27. The method of claim 25, wherein J and K are taken together to form a 5 membered heterocyclic ring.

28. The method of claim 27,

- wherein X is oxygen and R_1 is not hydrogen;

- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

29. The method of claim 28, wherein

- if R_1 is C1-C6 straight or branched alkyl, C2-C6 straight or branched alkenyl, C5-C7 cycloalkyl substituted with C1-C4 straight or branched alkyl or C2-C4 straight or branched alkenyl, or Ar, and Ar is 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl;

- then Z is not:

1) a C1-C6 alkyl or C2-C6 alkenyl substituted with substituted or unsubstituted 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl; or

2) a C1-C6 alkyl or C2-C6 alkenyl substituted with C5-C7 cycloalkyl.

30. The method of claim 25, wherein J and K are taken together to form a 6 membered heterocyclic ring.

31. The method of claim 30,

- wherein X is oxygen and R_1 is not hydrogen;

- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

32. The method of claim 31, wherein

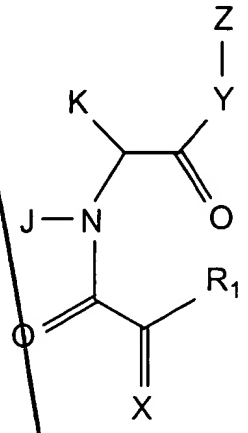
-if Y is oxygen and R_1 is 1,1-dimethyl-1-propyl, then Z is not 3-cycloheylpropyl, 3-phenylpropyl, or 3-(3',4,5-trimethoxyphenyl)propyl; and

-if Y is oxygen and R_1 is 3',4,5-trimethoxyphenyl, then Z is not 4-(4'-methoxyphenyl)butyl; and

-if Y is oxygen and Z is ethyl, then R_1 is not methyl, ethyl, isopropyl, 2-methylpropyl, t-butyl, 1,1-dimthyl-1-propyl, phenyl, or benzyl.

33. A method for stimulating the growth of at least one damaged peripheral nerve, comprising:

administering to said damaged peripheral nerve an effective amount of a compound having an affinity for FKBP-type immunophilins according to formula II

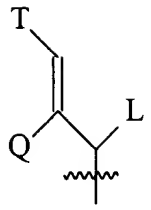


Formula II

or a pharmaceutically acceptable salt thereof,

- wherein Y is O, NH, or N-(C1-C4 alkyl);

- wherein Z is hydrogen, CH2-Ar, (C1-C6)-straight or branched alkyl, (C2-C6)-straight or branched alkenyl, (C5-C7)-cycloalkyl, (C5-C7)-cycloalkenyl or Ar substituted (C2-C6)-alkyl or alkenyl, or



- wherein L and Q are independently hydrogen, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl;

- wherein T is Ar or substituted cyclohexyl with substituents at positions 3 and 4 which are independently selected from the group consisting of hydrogen, hydroxyl, O-(C1-C4)-alkyl or O-(C2-C4)-alkenyl and carbonyl;

- wherein Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, CF_3, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, O-benzyl, O-phenyl, amino and phenyl;

- wherein R_1 is U; X is either oxygen or CH-U, provided that if R_1 is hydrogen, then X is CH-U, or if X is oxygen then R_1 is U;

- wherein U is hydrogen, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar; and

- wherein J is hydrogen or C1 or C2 alkyl or benzyl; K is (C1-C4)-straight or branched alkyl, benzyl or cyclohexylethyl; or wherein J and K may be taken together to form a 5-7 membered heterocyclic ring which may contain an oxygen (O), sulfur (S), SO or SO_2 substituted therein.

34. The method of claim 33, further comprising co-administering an effective amount of a neurotrophic factor to stimulate growth of the damaged peripheral nerve selected from the group consisting of nerve growth factor, brain derived growth factor, glial derived growth factor, and neurotropin-3.

35. The method of claim 33, wherein J and K are taken together to form a 5 membered heterocyclic ring.

36. The method of claim 35,

- wherein X is oxygen and R_1 is not hydrogen;
- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

37. The method of claim 36, wherein

- if R_1 is C1-C6 straight or branched alkyl, C2-C6 straight or branched alkenyl, C5-C7 cycloalkyl substituted with C1-C4 straight or branched alkyl or C2-C4 straight or branched alkenyl, or Ar, and Ar is 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl;

- then Z is not:

1) a C1-C6 alkyl or C2-C6 alkenyl substituted with substituted or unsubstituted 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl; or

2) a C1-C6 alkyl or C2-C6 alkenyl substituted with C5-C7 cycloalkyl.

38. The method of claim 33, wherein J and K are taken together to form a 6 membered heterocyclic ring.

39. The method of claim 38,

- wherein X is oxygen and R_1 is not hydrogen;

- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

40. The method of claim 39, wherein

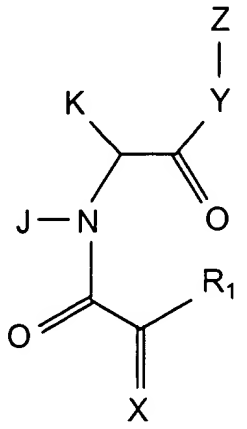
-if Y is oxygen and R_1 is 1,1-dimethyl-1-propyl, then Z is not 3-cycloheylpropyl, 3-phenylpropyl, or 3-(3',4,5-trimethoxyphenyl)propyl; and

-if Y is oxygen and R_1 is 3',4,5-trimethoxyphenyl, then Z is not 4-(4'-methoxyphenyl)butyl; and

-if Y is oxygen and Z is ethyl, then R_1 is not methyl, ethyl, isopropyl, 2-methylpropyl, t-butyl, 1,1-dimthyl-1-propyl, phenyl, or benzyl.

41. A method for stimulating neurite outgrowth by a nerve cell, comprising:

administering to said nerve cell an effective amount of compound having an affinity for FKBP-type immunophilins according to formula II

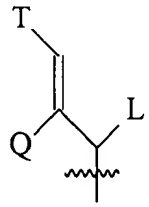


Formula II

or a pharmaceutically acceptable salt thereof,

- wherein Y is O, NH, or N-(C1-C4 alkyl);

- wherein Z is hydrogen, CHL-Ar, (C1-C6)-straight or branched alkyl, (C2-C6)-straight or branched alkenyl, (C5-C7)-cycloalkyl, (C5-C7)-cycloalkenyl or Ar substituted (C1-C6)-alkyl or (C2-C6)-alkenyl, or



- wherein L and Q are independently hydrogen, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl;

- wherein T is Ar or substituted cyclohexyl with substituents at positions 3 and 4 which are independently selected from the group consisting of hydrogen, hydroxyl, O-(C1-C4)-alkyl or O-(C2-C4)-alkenyl and carbonyl;

- wherein Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, CF_3, (C1-C6)-straight or branched alkyl or (C2-C6)-straight or branched alkenyl, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, O-benzyl, O-phenyl, amino and phenyl;

- wherein R_1 is U; X is either oxygen or CH-U, provided that if R_1 is hydrogen, then X is CH-U, or if X is oxygen then R_1 is U;

- wherein U is hydrogen, O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar; and

- wherein J is hydrogen or C1 or C2 alkyl or benzyl; K is (C1-C4)-straight or branched alkyl, benzyl or cyclohexylethyl; or wherein J and K may be taken together to form a 5-7 membered heterocyclic ring which may contain an oxygen

(O), sulfur (S), SO or SO_2 substituted therein.

42. The method of claim 41, further comprising co-administering an effective amount of a neurotrophic factor to stimulate neurite outgrowth selected from the group consisting of nerve growth factor, brain derived growth factor, glial derived growth factor, and neurotropin-3.

43. The method of claim 41, wherein J and K are taken together to form a 5 membered heterocyclic ring.

44. The method of claim 43,

- wherein X is oxygen and R_1 is not hydrogen;
- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

45. The method of claim 44, wherein

- if R_1 is C1-C6 straight or branched alkyl, C2-C6 straight or branched alkenyl, C5-C7 cycloalkyl substituted with C1-C4 straight or branched alkyl or C2-C4 straight or branched alkenyl, or Ar, and Ar is 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl;

- then Z is not:

1) a C1-C6 alkyl or C2-C6 alkenyl substituted with substituted or unsubstituted 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, or phenyl; or

2) a C1-C6 alkyl or C2-C6 alkenyl substituted with C5-C7 cycloalkyl.

46. The method of claim 41, wherein J and K are taken together to form a 6 membered heterocyclic ring.

47. The method of claim 46,

- wherein X is oxygen and R_4 is not hydrogen;

- wherein U is O-(C1-C4)-straight or branched alkyl or O-(C2-C4)-straight or branched alkenyl, C1-C6-straight or branched alkyl, or C2-C6-straight or branched alkenyl, C5-C7-cycloalkyl or (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C2-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C2-C4)-alkenyl]-Ar or Ar.

48. The method of claim 47, wherein

-if Y is oxygen and R_1 is 1,1-dimethyl-1-propyl, then Z is not 3-cycloheylpropyl, 3-phenylpropyl, or 3-(3',4,5-trimethoxyphenyl)propyl; and

-if Y is oxygen and R_1 is 3',4,5-trimethoxyphenyl, then Z is not 4-(4'-methoxyphenyl)butyl; and

-if Y is oxygen and Z is ethyl, then R_1 is not methyl, ethyl, isopropyl, 2-methylpropyl, t-butyl, 1,1-dimthyl-1-propyl, phenyl, or benzyl.

49. The method of claim 41, wherein said method is used to treat a patient who is suffering from or has suffered from Alzheimer's disease, Parkinson's disease, stroke, ischemia associated with stroke, neural paropathy, other neural degenerative diseases, motor neuron diseases, sciatic nerve crush, spinal cord injuries, or facial nerve crush.